

## AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for discharging fluid, comprising:

~~while keeping two members relatively moving to each other along a gap direction of a gap formed by two opposing surfaces of the two members, feeding fluid from a fluid supply device to the a gap formed by two opposing surfaces of two members, while keeping the two members moving relative to each other along a gap direction of the gap; and~~

intermittently discharging the fluid by utilizing a pressure change made by changing the gap, and controlling a fluid discharge amount per dot depending on pressure and flow rate characteristics of the fluid supply device; and

setting the gap to have a minimum value  $h_0$  such that the intermittent discharging is performed while  $h_0 > h_x$ , wherein:

an intermittent discharge amount per dot is generally proportional to the minimum value  $h_0$  when  $h_0$  is set in the range of  $0 < h_0 < h_x$ ,

the intermittent discharge amount per dot is generally constant independent of the minimum value  $h_0$  when  $h_0 > h_x$ ,

the intermittent discharge amount per dot relative to  $h_0$  is represented by a curved line when  $h_0$  is set in the range of  $0 < h_0 < h_x$ , and a first straight line is tangent to the curved line at a portion near  $h_0 = 0$ ,

the intermittent discharge amount per dot is generally constant and represented by a second straight line when  $h_0 > h_x$ , and

an intersection between the first straight line and the second straight line is defined as  $h_0 = h_x$ ,
2. (Currently Amended) The method for discharging fluid according to Claim 1, wherein further comprising:

setting the pressure and flow rate characteristics of the fluid supply device are set by changing a number of rotations of the fluid supply device.
3. (Cancelled)

4. (Currently Amended) The method for discharging fluid according to Claim 1, wherein assuming that a fluid pressure generated in inverse proportion to a size of the gap between the opposing surfaces of the two members and in proportion to ~~time differential of the gap a rate at which the size of the gap changes~~ is a primary squeeze pressure, and that

~~a fluid pressure generated in proportion to the time differential of the gap rate at which the size of the gap changes and in proportion to an internal resistance of the fluid supply device is a secondary squeeze pressure, and further that a minimum value or a mean value of the gap is  $h_0$ ,~~

~~the intermittent discharge is performed by action of the secondary squeeze pressure with the gap  $h_0$  set to a range of  $h_0 > h_x$ , a setting range of the gap  $h_0$  over which an intermittent discharge amount per dot is generally proportional to the gap  $h_0$  is  $0 < h_0 < h_x$ , and where a setting range of the gap  $h_0$  over which an intermittent discharge amount is generally constant independent of the gap  $h_0$  is  $h_0 > h_x$ , and where  $h_x$  is an intersection point between an envelope of the intermittent discharge amount per dot relative to  $h_0$  in a region  $0 < h_0 < h_x$ , and a value of a portion of the region  $h_0 > h_x$  over which the intermittent discharge amount per dot is generally constant independent of  $h_0$ .~~

5. (Withdrawn) The method for discharging fluid according to Claim 1, wherein assuming that a fluid pressure generated in inverse proportion to a size of the gap between the opposing surfaces of the two members and in proportion to time differential of the gap is a primary squeeze pressure, and that a fluid pressure generated in proportion to the time differential of the gap and in proportion to an internal resistance of the fluid supply device is a secondary squeeze pressure, and further that a minimum value or a mean value of the gap is  $h_0$ , the intermittent discharge is performed with the gap  $h_0$  set to a value of  $h_0 \approx h_x$  or to a range of  $0 < h_0 < h_x$ , where a setting range of the gap  $h_0$  over which an intermittent discharge amount per dot is generally proportional to the gap  $h_0$  is  $0 < h_0 < h_x$ , and where a setting range of the gap  $h_0$  over which the intermittent discharge amount is generally constant independent of the gap  $h_0$  is  $h_0 > h_x$ , and where  $h_x$  is an intersection point between an envelope of the intermittent discharge amount per dot relative to  $h_0$  in a region  $0 < h_0 < h_x$ , and a value of a portion of the region  $h_0 > h_x$  over which the intermittent discharge amount per dot is generally constant independent of  $h_0$ .

6. (Cancelled)

7. (Currently Amended) The method for discharging fluid according to Claim 3 1, wherein ~~assuming that~~ a fluid internal resistance of the fluid supply device is  $R_s$  (kgsec/mm<sup>5</sup>), a radial fluid internal resistance of the opposing surfaces of the relatively moving two members that depends on the gap  $h_0$  of the opposing surfaces of the two members is  $R_p$  (kgsec/mm<sup>5</sup>), a fluid resistance of the discharge port is  $R_n$  (kgsec/mm<sup>5</sup>), and if a function  $\phi$  is defined as

$$\phi = \frac{1}{R_n + R_p + R_s} ,$$

then  $h_x$  is a value of an intersection point between an envelope of a curve  $\phi$  relative to  $h$  in a region  $0 < h < h_x$ , and a portion of the region  $h_0 > h_x$  over which the curve  $\phi$  is independent of  $h_0$  and generally constant.

8. (Withdrawn) The method for discharging fluid according to Claim 1, wherein if a maximum value of time differential of the gap is  $V_{max}$ , a mean radius of outer peripheries of the two members is  $r_0$  (mm), a mean radius of a discharge opening for connecting the gap and outside of the device is  $r_i$  (mm), and if a maximum flow rate of the fluid supply device is  $Q_{max}$ , then

$$Q_{max} < \pi (r_0^2 - r_i^2) V_{max} .$$

9. (Currently Amended) The method for discharging fluid according to Claim 1, wherein ~~the feeding of fluid to the gap includes supplying fluid through branches to a plurality of sets of~~ the two members that are relatively moved to each other along a gap direction, ~~wherein each set of the two members includes an~~ by independent axial direction drive ~~device~~ devices are provided in a plurality of sets, and the fluid is supplied by one set of fluid supply device in branches to gaps between these sets of two members.

10. (Withdrawn) The method for discharging fluid according to Claim 9, wherein each discharge amount is controlled by setting the gap between opposing surfaces of respective two members to a proximity to  $h_0 \approx h_x$  or to a range of  $0 < h_0 < h_x$ .

11. (Currently Amended) The method for discharging fluid according to Claim 1, wherein an equal discharge amount per dot of fluid is intermittently discharged for coating periodically at equal time intervals while discharge nozzles and a substrate are kept ~~relatively running moving relative~~ to each other by making use of a property that a coating-object surface of the substrate is geometrically symmetrical.

12. (Withdrawn) The method for discharging fluid according to Claim 11, wherein the coating-object surface is a surface of a display panel.

13. (Withdrawn) The method for discharging fluid according to Claim 1, wherein fluid is supplied to opposing surfaces of two members that are relatively moved to each other along a gap direction by a fluid supply device, and wherein given a gap  $h$  (mm) of the two opposing surfaces, time differential  $dh/dt$  of the gap  $h$ , a mean radius  $r_o$  (mm) of outer peripheries of the two opposing surfaces, a mean radius  $r_i$  (mm) of a discharge opening for connecting the gap and outside, a viscosity coefficient  $\mu$  (kgsec/mm<sup>2</sup>) of the fluid, a fluid internal resistance  $R_s$  (kgsec/mm<sup>5</sup>) of the fluid supply device, a radial fluid resistance  $R_p$  (kgsec/mm<sup>5</sup>) of the two opposing surfaces, a fluid resistance  $R_n$  (kgsec/mm<sup>5</sup>) of the discharge opening, a sum  $P_{s0}$  of a maximum pressure and a supply pressure of the fluid supply device, and given a frequency  $f$  (1/sec) of intermittent discharge, it holds that  $P_{s0} + P_{squ10} + P_{squ20} < 0$ , where a primary squeeze pressure  $P_{squ1}$  and a secondary squeeze pressure  $P_{squ2}$  are defined as

$$P_{squ1} = -\frac{3\mu}{h^3} \frac{dh}{dt} \left\{ (r_o^2 - r_i^2) + 2r_i^2 \ln \frac{r_i}{r_o} \right\}$$

$$P_{squ2} = -R_s \pi \frac{dh}{dt} (r_o^2 - r_i^2)$$

and where a primary squeeze pressure  $P_{squ1}$  and a secondary squeeze pressure  $P_{squ2}$  resulting when the time differential  $dh/dt$  of the gap  $h$  has a maximum value are  $P_{squ1} = P_{squ10}$  and  $P_{squ2} = P_{squ20}$ , respectively.

14. (Withdrawn) The method for discharging fluid according to Claim 1, wherein in an application process in which coating is performed as the discharge while a coating-object surface and a discharge nozzle for connecting to the gaps are being relatively moved to each other, given a displacement input signal Sh that gives the gap between the two opposing surfaces, relative positions of the coating-object surface and the discharge nozzle and a timing of the displacement input signal Sh are adjusted by taking into consideration that a phase of coating is advanced by generally  $\Delta\theta=\pi/2$  over the displacement input signal Sh.

15. (Withdrawn) The method for discharging fluid according to Claim 1, wherein the two members are relatively moved by an electro-magnetostriction element.

16. (Withdrawn) The method for discharging fluid according to Claim 1, wherein an amplitude immediately before a halt of coating of the two members that are relatively moved to each other along the gap direction is larger than an amplitude of steady intermittent application.

17. (Withdrawn) The method for discharging fluid according to Claim 1, wherein while a dispenser for discharging the fluid through the gap is being relatively moved to a substrate on which independent ribs each surrounded by a barrier rib are formed geometrically symmetrical, fluorescent-material paste is intermittently discharged so that the fluorescent-material paste is applied to interiors of the independent cells one by one, by which a fluorescent-material layer of a plasma display panel is formed.

18. (Withdrawn) The method for discharging fluid according to Claim 17, wherein the fluorescent-material paste is flown from the discharge nozzle so as to be applied while a distance H between a crest of the barrier rib and a tip end portion of the discharge nozzle is maintained at 0.5 mm or more.

19. (Withdrawn) The method for discharging fluid according to Claim 18, wherein the distance H is 1.0 mm or more.

20. (Withdrawn) The method for discharging fluid according to Claim 1, wherein the two opposing surfaces of the two members that are relatively moved to each other along a gap direction by independent axial direction drive devices are provided in a plurality of sets, and the fluid is supplied by one set of fluid supply device in branches to gaps between these sets of two members, and wherein each discharge amount is controlled by a flow-rate compensation device which is provided on a flow passage that connects the fluid supply device and the two opposing surfaces of the relatively moving two members to each other and which is capable of changing a flow passage resistance.

21. (Withdrawn) The method for discharging fluid according to Claim 1, further comprising: in a coating process of intermittent application performed while the gap between the opposing surfaces of the relatively moving two members is varied at an amplitude  $h_1$ , increasing the gap between the opposing surfaces of the two members at an amplitude  $h_2$  larger than the amplitude  $h_1$  to interrupt the discharge; and thereafter performing intermittent application a plurality of times at the amplitude  $h_1$  so that a central value of the gap after the interruption becomes gradually equal to a central value of the gap immediately before the interruption.

22-36. (Cancelled)

37. (Withdrawn) A method for discharging fluid, comprising: while keeping two members for relatively moving to each other along a gap direction, feeding fluid from a fluid supply device to the gap; and controlling interruption and release of fluid discharge by utilizing a pressure change made by changing the gap, and assuming that a minimum value or a mean value of the gap is  $h_0$ , performing the fluid discharge with the gap  $h_0$  is set to a range of  $h_0 > h_x$ , where a setting range of the gap  $h_0$  over which a steady-state discharge amount  $Q$  of the fluid is generally proportional to the gap  $h_0$  is  $0 < h_0 < h_x$ , and where a setting range of the gap  $h_0$  over which the discharge amount is generally constant independent of the gap  $h_0$  is  $h_0 > h_x$ .

38. (New) The method for discharging fluid according to Claim 1, wherein the minimum value  $h_0$  of the gap is 0.05 mm.